

**SYSTEMS ENGINEERING DEPARTMENT**  
**SE-307 Engineering Economic Analysis**

**Instructor:** Atiq Waliullah Siddiqui  
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**Office Hours:** Sat - Tues: 09:00 AM – 10:00 AM (Or By Appointment)

**Objective:** To develop students' awareness of the concepts using **cash flow approach, time value of money, product/project costing and rate of return**. To introduce students to the process of **integrating engineering proposals with economic analysis** in order to select among several viable alternative projects; and to understand and appreciate the models and measures used in decision making in the area of engineering economics.

**Course Outcomes:** This cash flow oriented course concerns the principles involved in analyzing economic investment alternatives. Students completing this course will be able to:

1. Evaluate the economic feasibility of investments related to engineering projects.
2. Assess the impact of depreciation, taxation and other economic factors on projects' feasibility.
3. Conduct sensitivity analysis on key compounding parameters.
4. Develop policies for assets replacement.
5. Assess alternative financing modes.
6. Make financially prudent decisions in everyday life (car/home loans or investments).

**Course Textbook:** Park, Chan S., Fundamentals of Engineering Economics, 1st Ed., Prentice Hall (2004).

Other appropriate books to be used as references:

**Other Readings:** a. Park, Chan S., Contemporary Engineering Economics 3rd Ed., Prentice Hall (2002). (\*\*CEE)

**Attendance:** University regulations will be very strongly enforced.

**Homework:** Late homework will not be accepted under any circumstances.

**Grading Policy:**

Attendance	5%
Home works	5 %
Quiz(es)	5 %
Group Project (peer reviewed)	10 %
Major Exams (I & II)	25% Each
<b>Major # 1 Tuesday, 20<sup>th</sup> March 2008, Major # 2 Tuesday, 15<sup>th</sup> December 2007</b>	
Final Exam (check reg. website)	25%
The distribution may be reviewed if necessary	

**Weekly breakdown of course topics**

Topics	# of weeks
i. Engineering economic decisions	0.5 ch. 1
ii. Costs concepts and behaviors	2.0 <b>ch. 3 (**CEE)</b>
iii. Cash Flows and Time Value of money management	1.5 ch. 2 & 3
iv. Present and Future worth and annual equivalent worth analysis	2.0 ch. 5 & 6
v. Bond Problems	1.5 ch. 6.4 (**CEE)
vi. Rate of return analysis and Payback Period	2.0 ch. 7
vii. Comparison of alternatives & replacement decisions	2.0 ch. 9 & 11
viii. Depreciation	1 ch. 8
ix. Corporate income tax	0.5 ch. 8
x. Inflation and its impact on project cash flows	0.5 ch. 4
xi. Economic analysis in the public sector (Benefit-Cost Analysis)	1 ch. 12
xii. Project break-even and sensitivity analysis	0.5 ch. 10

**Computer usage:** There will be a number of homework and case studies that will be solved through computer software and Excel spread sheet.

**CAVEAT:** The syllabus is **subjected to change**. So if there is a change **make sure to update your syllabus** promptly.